

Name _____ Class _____ Date _____

Chapter 5 Unit Activity

Your job should you choose to accept it is to find three coordinates in the coordinate plane such that the *Circumcenter* of those three points is a *lattice point* (this is a point with integer coordinates).

A) Write the three coordinates that you used below:

Point A _____ Point B _____ Point C _____

B) Now find the midpoint of each segment. See section 1.6 in your book if you need help remembering how this is done. **(SHOW ALL OF YOUR WORK):**

Midpoint of AB _____ (Label this coordinate X)

Midpoint of BC _____ (Label this coordinate Y)

Midpoint of AC _____ (Label this coordinate Z)

C) Next, find the slope of each segment in your triangle. See Page 151 in your book if you need help remembering how this is done. **(SHOW ALL OF YOUR WORK):**

Slope of AB _____

Slope of BC _____

Slope of AC _____

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- D) Use what you have found in Part B & C to find the equation of the perpendicular bisector of each segment. See section 3.6 in your book if you need help remembering how this is done. **(SHOW ALL OF YOUR WORK):**

Perpendicular Bisector of AB $y =$ _____

Perpendicular Bisector of BC $y =$ _____

Perpendicular Bisector of AC $y =$ _____

- E) Give the coordinate of your Circumcenter (Label this coordinate T):

Coordinate of point T _____

- F) Finally, PROVE that T is the Circumcenter of your triangle by showing that AT, BT, and CT have the same lengths. See section 1.6 in your book if you need help remembering how this is done. **(SHOW ALL OF YOUR WORK):**

Length of AT _____

Length of BT _____

Length of CT _____

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- G) Finally, graph parts A-G in the coordinate plane below and construct the Circumcenter of triangle ABC using your compass. Be sure to label all points and lines in your graph.

